

## ABSTRACT

An internal combustion engine (1) generates power by burning an air-fuel mixture in a combustion chamber (3).  
5 The internal combustion engine (1) is provided with an in-cylinder pressure sensor (15) and an ECU (20). The ECU 20 calculates at two predetermined points control parameters each of which is a product of an in-cylinder pressure detected by the in-cylinder pressure sensor (15)  
10 and a value obtained by exponentiating an in-cylinder volume at the time of detecting the in-cylinder pressure by a predetermined index number, as well as determines a misfire condition in the combustion chamber (3) based on the difference component in the control parameters between  
15 the two predetermined points.